

Form PTO-1449 Modified List of Patent and Publications Cited by Applicant (Use several sheets if necessary) U.S. Department of Commerce Patent and Trademark Office	Docket No. ISIS-4682	Serial No. 09/775,967
	Applicant Guzaev, et al.	
	Filing Date February 2, 2001	Group 1623

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

PL	AA ✓	Alul, R.H. et al., "Oxalyl-CPG: a labile support for synthesis of sensitive oligonucleotide derivatives," <i>Nucl. Acid Res.</i> , 1991 , 19, 1527-1532
	AB ✓	Atkins, P.W., "Henderson-Hasselbalch equation," <i>Physical Chemistry</i> , 3 rd Ed., W.H. Freeman and Co., NY, 1985 , 280
	AC	Beaucage, S. L. et al., "Advances in the Synthesis of Oligonucleotides by the Phosphoramidite Approach," <i>Tetrahedron</i> , 1992 , 48, 2223-2311
	AD ✓	Berner, S. et al., "Studies on the role of tetrazole in the activation of phosphoramidites," <i>Nucl. Acids Res.</i> , 1989 , 17, 853-864
	AE ✓	Bielinska, A. et al., "Regulation of Gene Expression with Double-Stranded Phosphorothioate Oligonucleotides," <i>Science</i> , 1990 , 250, 997-1000
	AF ✓	Brill, W. K. et al., "Synthesis of of oligodeoxynucleoside phosphorodithioates via thioamidites," <i>J. Am. Chem. Soc.</i> , 1989 , 111, 2321-2322
	AG ✓	Brown, T., et al. "Oligonucleotides and Analogues a Practical Approach, <i>IRL Press</i> , NY, Eckstein, F. (Ed.), 1991 , Chapter 1, 1-23
	AH	Caruthers M.H., et al., "Synthesis of oligonucleotides using the phosphoramidite method," Bruzik, K.S., et al. (Eds.), <i>Esevier, Amsterdam</i> , 1987 , 3-21
	AI ✓	Caruthers, M.H., "Chemical synthesis of DNA and DNA analogues," <i>Acc. Chem. Res.</i> , 1991 , 24, 278-284
↓	AJ ✓	Coetzee, J.F., et al., "Properties of bases in acetonitrile as solvent. IV. Proton acceptor power and homoconjugation of mono-and diamines," <i>J. Am. Chem. Soc.</i> , 1965 , 87, 5005-5010
PL	AK ✓	Cook, P. D., "Medicinal Chemistry of Antisense Oligonucleotides - future opportunities," <i>Anti-Cancer Drug Design</i> , 1991 , 6, 585-607

EXAMINER 	DATE CONSIDERED 11-24-03
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OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
PC	AL ✓	Corey, D.R., "Peptide nucleic acids: expanding the scope of nucleic acid recognition," <i>TIBTECH</i> , 1997 , 15, 224-229	
	AM ✓	Dahl, B. H. et al., "Mechanistic studies on the phosphoramidite coupling reaction in oligonucleotide synthesis. I. Evidence for nucleophilic catalysis by tetrazole and rate variations with the phosphorus substituents," <i>Nucl. Acids Res.</i> , 1987 , 15, 1729-1743	
	AN ✓	Delgado, et al., <i>Critical Reviews in Therapeutic Drug Carrier Systems</i> , 1992 , 9, 249-304	
*	AO	Eckstein, F. (Ed.), "Oligonucleotides and Analogues a Practical Approach," <i>IRL Press, NY</i> , 1991	
	AP	Efimov, V.A. et al., "New efficient sulfurizing reagents for the preparation of oligodeoxyribonucleotide phosphorothioate analogues," <i>Nucl. Acids Res.</i> , 1995 , 23, 4029-4033	
	AQ ✓	Egholm, M. et al., "Peptide Nucleic Acids (PNA). Oligonucleotide Analogues with an Achiral Peptide Backbone," <i>J. Am. Chem Soc.</i> , 1992 , 114, 1895-1897	
	AR ✓	Englisch, U. et al., "Chemically Modified Oligonucleotides as Probes and Inhibitors," <i>Angew. Chem. Int. Ed. Eng.</i> , 1991 , 30, 613-629 (<i>see especially pages 622-623</i>)	
✓	AS ✓	Földes-Papp, Z., et al., "Fractal dimension of error sequence dynamics in quantitative modeling of syntheses of short oligonucleotide and single-stranded DNA sequences," <i>J. Theor. Biol.</i> , 1995 , 174, 391-408	
PC	AT ✓	Földes-Papp, Z., et al., "Fractals for multicyclic synthesis conditions of biopolymers examples of oligonucleotide synthesis measured by high-performance capillary electrophoresis and ion-exchange high-performance liquid chromatography," <i>J. Chromatography A</i> , 1996 , 739, 431-447	
EXAMINER <i>[Signature]</i>		DATE CONSIDERED <i>11-24-03</i>	

* A copy of this reference will not be forwarded to the U.S. Patent and Trademark Office since it is believed to be too voluminous and easily obtainable by the Examiner.

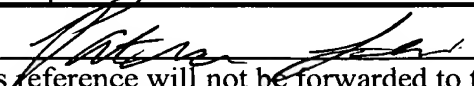


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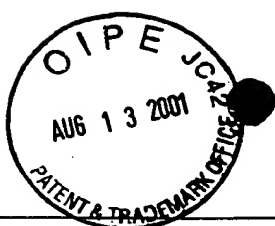
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PL	AU	Földes-Papp, Z., et al., "The analysis of oligonucleotide preparations by fractal measures," <i>Biopolymers</i> , 1998 , <i>45</i> , 361-379	
	AV	Froehler, B. C. et al., "Nucleoside H-Phosphonates: Valuable Intermediates in the Synthesis of Deoxyoligonucleotides," <i>Tetra. Lett.</i> , 1986 , <i>27(4)</i> , 469-472	
	AW	Garegg, P. J. et al., "Formation of Internucleotidic Bonds via Phosphonate Intermediates," <i>Chemica Scripta</i> , 1985 , <i>25</i> , 280-282	
	AX	Thomson, J.B., et al., "Synthesis and properties of diuridine phosphate analogues containing thio and amino modifications," <i>J. Org. Chem.</i> , 1996 , <i>61</i> , 6273-6281	
	AY	Gould, E.S., <i>Mechanism and Structure in Organic Chemistry</i> , 1960 , 201	
*	AZ	Green, et al., "Protective Groups in Organic Synthesis, 2 nd Ed., <i>John Wiley & Sons</i> , NY, 1991	
	BA	Gryaznov, S. M. et al., "A New Approach to the Synthesis of Oligodeoxyribonucleotides Alkylamino Groups Linked to Internucleotide Phosphate Groups," <i>Tetrahedron Letts.</i> , 1991 , <i>32(30)</i> , 1991 , 3715-3718	
	BB	Hall, R.H., et al., "Nucleotides. Part XLI.* Mixed anhydrides as intermediates in the synthesis of dinucleoside phosphates," <i>J. Chem. Soc.</i> , 1957 , 3291-3296	
	BC	Hamm, M. L. et al., "Incorporation of 2'-Deoxy-2'-mercaptocytidine into Oligonucleotides via Phosphoramidite Chemistry," <i>J. Org. Chem.</i> , 1997 , <i>62</i> , 3415-3420	
	BD	Iyer, R. P. et al., "3H-1,2-Benzodithiole-3-one 1,1-Dioxide as an Improved Sulfurizing Reagent in the Solid-Phase Synthesis of Oligodeoxyribonucleoside Phosphorothioates," <i>J. Am. Chem. Soc.</i> , 1990 , <i>112</i> , 1253-1254	
PL	BE	Iyer, R. P. et al., "The Automated Synthesis of Sulfur-Containing Oligodeoxyribonucleotides Using 3H-1,2-Benzodithiol-3-one 1,1-Dioxide as a Sulfur-Transfer Reagent," <i>J. Org. Chem.</i> , 1990 , <i>55</i> , 4693-4699	
EXAMINER 		DATE CONSIDERED 11-24-03	

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<i>PL</i>	BF ✓	Izutsu, K., "Acid-base dissociation constants in dipolar aprotic solvents," Chemical Data Series No. 35, <i>Blackwell Scientific Publ., Oxford</i> , 1990, 3-166	
	BG	Kaljurand, I., et al., "Self-consistent spectrophotometric basicity scale in acetonitrile covering the range between pyridine and DBU," <i>J. Org. Chem.</i> , 2000, 65, 6202-6208	
	BH	Kamer, P.C.J. et al., "An Efficient Approach Toward the Synthesis of Phosphorothioate Diesters via the Schonberg Reaction," <i>Tetrahedron Letts.</i> , 1989, 30, 6757-6760	
	BI	Kroschwitz, J. I., "Polynucleotides," <i>Concise Encyclopedia of Polymer Science and Engineering</i> , 1990, John Wiley & Sons, New York, 858-859	
	BJ	Maier, M.A., et al., "Synthesis of chimeric oligonucleotides containing phosphodiester, phosphorothioate, and phosphoramidate linkages," <i>Org. Lett.</i> , 2000, 2(13), 1819-1822	
	BK	Manoharan, M., et al., "Allyl group as a protecting group for internucleotide phosphate and thiophosphate linkages in oligonucleotide synthesis: facile oxidation and deprotection conditions," <i>Org. Letts.</i> , 2000, 2(3), 243-246	
	BL	Martin, P., "Ein neuer Zugang zu 2'-O-Alkylribonucleosiden und Eigenschaften deren Oligonucleotide," <i>Helvetica Chimica Acta</i> , 1995, 78, 486-504	
	BM	Nielsen, P. E. et al., "Sequence-Selective Recognition of DNA by Strand Displacement with a Thymine-Substituted Polyamide," <i>Science</i> , 1991, 254, 1497-1500	
✓	BN	Nielsen, J. et al., "Thermal Instability of Some Alkyl Phosphorodiamidites," <i>J. Chem. Res.</i> , 1986, S, 26-27	
<i>PL</i>	BO	Nurminen, E.J., et al., "Alcoholysis of dialkyl tetrazolylphosphonites," <i>J. Chem. Soc. Perkin Trans.</i> , 1999, 2, 2551-2556	
EXAMINER <i>[Signature]</i>		DATE CONSIDERED <i>11-24-03</i>	



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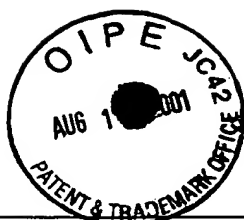
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PL	BP	Ouchi, T. et al., "Synthesis and Antitumor Activity of Poly(Ethylene Glycol)s Linked to 5'-Fluorouracil via a Urethane or Urea Bond," <i>Drug Des. & Disc.</i> , 1992, 9, 93-105		
	BQ	Polushin, N. N. et al., "Synthesis of Oligonucleotides Containing 2'-Azido-and 2'-Amino-2'-deoxyuridine Using Phosphotriester Chemistry," <i>Tetrahedron Letts.</i> , 1996, 37(19), 3227-3230		
	BR	Pon, R. T. et al., "Hydroquinone-O, O-diacetic acid ('Q-linker') as a replacement for succinyl and oxalyl linker arms in solid phase oligonucleotide synthesis," <i>Nucl. Acids Res.</i> , 1997, 25(18), 3629-3635		
	BS	Pon, R. T., "Enhanced Coupling Efficiency Using 4-Dimethylaminopyridine (DMAP) and Either Tetrazole, 5-(o-Nitrophenyl) Tetrazole, or 5-(p-Nitrophenyl) Tetrazole in the Solid Phase Synthesis of Oligoribonucleotides by the Phosphoramidite Procedure," <i>Tetrahedron Letts.</i> , 1987, 28(32), 3643-3646		
	BT	Rao, M. V. et al., "Dibenzoyl Tetrasulphide-A Rapid Sulphur Transfer Agent in the Synthesis of Phosphorothioate Analogues of Oligonucleotides," <i>Tetrahedron Letts.</i> , 1992, 33(33), 4839-4842		
	BU	Ravasio, N. et al., "Selective Hydrogenations Promoted by Copper Catalysts. 1. Chemoselectivity, Regioselectivity, and Stereoselectivity in the Hydrogenation of 3-Substituted Steroids," <i>J. Org. Chem.</i> , 1991, 56, 4329-4333		
*	BV	Sambrook, J., et al. (Eds), "Molecular Cloning, A Laboratory Manual," 2nd Ed., Cold Spring Harbor Laboratory Press, 1989		
*	BW	Sanghvi, in "Antisense Research and Application," Crooke, S.T., et al (Eds.), CRC Press, 1993		
PL	BX	Schwesinger, R., "Starke ungeladene stickstoffbasen," <i>Nachr. Chem. Tech. Lab.</i> , 1990, 1214-1226 (English abstract)		
PL	BY	Secrist, J. A. et al., "Synthesis and Biological Activity of 4'-Thionucleosides," <i>10th International Roundtable: Nucleosides, Nucleotides and their Biological Applications</i> , Sept. 16-20 1992, Abstract 21, Park City, Utah, 40		
EXAMINER <i>[Signature]</i>		DATE CONSIDERED <i>11-29-83</i>		

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PL	BZ	Sinha, N. D. et al., "Polymer Support Oligonucleotide Synthesis XVIII(1,2): Use of B-cuanoethyl-N, N-dialkylamino-/N-morpholino Phosphoramidite of Deoxynucleosides for the Synthesis of DNA fragments Simplifying Deprotection and Isolation of the Final Product," <i>Nucl. Acids Res.</i> , 1984 , 12(11), 4539-4557	
	CA	Sinha, N.D., et al., "β-cyanoethyl N, N-dialkylamino/N-morpholinomonochloro phosphoramidites, new phosphitylating agents facilitating ease of deprotection and work-up of synthesized oligonucleotides," <i>Tetrahedron Lett.</i> , 1983 , 24(52), 5843-5846	
	CB	Summerton, J., "Morpholino antisense oligomers: the case for an Rnase H-independent structural type," <i>Biochem. Biophys. Acta</i> , 1999 , 1489, 141-158	
	CC	Vasseur, J. J. et al., "Oligonucleosides: Synthesis of a Novel Methylhydroxylamine-linked Nucleoside Dimer and Its Incorporation into Antisense Sequences," <i>J. Am. Chem. Soc.</i> , 1992 , 114, 4006-4007	
	CD	Vu, H. et al, "Internucleotide Phosphite Sulfurization with Tetraethylthiuram Disulfide. Phosphorothioate Oligonucleotide Synthesis via Phosphoramidite Chemistry," <i>Tetrahedron Letts.</i> , 1991 , 32, 3005-3008	
	CE	Wright, P. et al., "Large Scale Synthesis of Oligonucleotides via phosphoramidite Nucleosides and a High-loaded Polystyrene Support," <i>Tetrahedron Letts.</i> , 1993 , 34, 3373-3376	
	CF	Wu, H. et al., "Inhibition of in vitro transcription by specific double-stranded oligodeoxyribonucleotides," <i>Gene</i> , 1990 , 89, 203-209	
✓	CG	Xu, Q. et al., "Use of 1,2,4-dithiazolidine (DtsNH) and 3-ethoxy-1,2,4-dithiazoline-5-one (EDITH) for synthesis of phosphorothioate-containing oligodeoxyribonucleotides," <i>Nucl. Acids Res.</i> , 1996 , 24, 1602-1607	
PL	CH	Xu, Q. et al., "Efficient introduction of phosphorothioates into RNA oligonucleotides by 3-ethoxy-1,2,4-dithiazoline-5-one (EDITH)," <i>Nucl. Acids Res.</i> , 1996 , 24, 3643-3644	
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U. S. PATENT DOCUMENTS

Examiner Initial		Document No.	Date	Name	Class	Subclass
PL	CI	3,687,808	08/29/72	Merigan, Jr., et al.	195	28 N
	CJ	4,415,732	11/15/83	Caruthers, et al.	536	27
	CK	4,458,066	07/03/84	Caruthers, et al.	536	27
	CL	4,500,707	02/19/85	Caruthers, et al.	536	27
	CM	4,668,777	05/26/87	Caruthers, et al.	536	27
	CN	4,725,677	02/26/88	Köster, et al.	536	27
	CO	4,973,679	11/27/90	Caruthers, et al.	536	27
	CP	5,132,418	07/21/92	Caruthers, et al.	536	27
	CQ	5,151,510	09/29/92	Stec, et al.	536	27
	CR	5,292,875	03/08/94	Stec, et al.	536	25.33
PL	CS	5,670,633	09/23/97	Cook, et al.	536	23.1
	CT	RE 34,069	09/15/92	Köster, et al.	536	27

FOREIGN PATENT DOCUMENTS

Examiner Initial		Document No.	Date	Country	Translation YES NO
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